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10/723,138	11/25/2003	Kevin Li	944-015.003	9453

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EXAMINER	
ADDY, ANTHONY S	

ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,138	LI, KEVIN	
	Examiner	Art Unit	
	ANTHONY S. ADDY	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to applicant's amendment filed on January 11, 2008. **Claim 11** has been cancelled. **Claims 1-10** and **12-26** are pending in the present application.

Response to Arguments

2. Applicant's arguments with respect to **claims 1-10** and **12-26** have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 2, 5, 6, 8, 9, 13-14, 16-22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leinonen et al., U.S. Publication Number 2003/0176176 A1 (hereinafter Leinonen).**

Regarding claims 1 and 22, Leinonen teaches an apparatus (*e.g. antenna system 1e & 1f*) (see abstract and Figs. 1c, 4 & 5), comprising: a first module for configuring (*e.g., tuner 20*) a first antenna (*antenna 12*) that facilitates reception of signals in at least a first frequency band (*e.g., GSM-850*) (p. 4 [0057], p. 5 [0062] and Figs. 1c & 5); and a second module for configuring (*e.g., tuner 22*) a second antenna (*antenna 13*) that facilitates reception of signals in a second frequency band (*i.e.,*

WCDMA-1900) and at least the first frequency band (*i.e., GSM-850*) received by the first antenna (see p. 4 [0057], p. 5 [0062] and Figs. 1c & 5).

Leinonen fails to explicitly teach a control component configured to determine whether a received signal comprises signal in the second frequency band, wherein the second antenna is configured for reception of signals in the second frequency band when the control component determines that the received signal comprises signals in the second frequency band.

However, Leinonen teaches a processor 94 (*i.e., reads on a control component*) for providing a control signal to a switch 34, and the switch 34 under the received control signal conveys signals received by the antenna 13 in the second frequency band (*i.e., WCDMA-1900*) to the WCDMA-1900 receiver 54 (see p. 5 [0062] and Fig. 5).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Leinonen to include a control component configured to determine whether a received signal comprises signal in the second frequency band, wherein the second antenna is configured for reception of signals in the second frequency band when the control component determines that the received signal comprises signals in the second frequency band, in order to configure a first antenna and second antenna to receive signals in a first or second frequency range and convey the received signals in the first or second frequency range to a first or second receiver, when the device is operating in the first or second mode as taught by Leinonen (see p. 2 [0036-0037] and p. 3 [0038]).

Regarding claims 17 and 24, Leinonen teaches system and a method (see abstract and Figs. 1c, 4 & 5), comprising: providing a first module (*e.g., tuner 20*) for configuring a first antenna (*antenna 12*) that facilitates reception of signals in at least a first frequency band (*e.g., GSM-850*) (see p. 4 [0057], p. 5 [0062] and Figs. 1C & 5); and providing a second module (*e.g., tuner 22*) for configuring a second antenna (*antenna 13*) that facilitates reception of signals in a second frequency band (*i.e., WCDMA-1900*) and at least the first frequency band (*e.g., GSM-850*) received by the first antenna (see p. 4 [0057], p. 5 [0062] and Figs. 1c & 5).

Leinonen fails to explicitly teach providing a control component for determining whether a received signal comprises signals in the second frequency band, and providing a first tuning component for tuning the second antenna for reception of signals in the second frequency band when the control component determines that the received signal comprises signals in the second frequency band.

However, Leinonen teaches a processor 94 (*i.e., reads on a control component*) for providing a control signal to a switch 34, and the switch 34 under the received control signal conveys signals received by the antenna 13 in the second frequency band (*i.e., WCDMA-1900*) to the WCDMA-1900 receiver 54 (see p. 5 [0062] and Fig. 5).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Leinonen to include a method of providing a control component for determining whether a received signal comprises signals in the second frequency band, and providing a first tuning component for tuning the second antenna for reception of signals in the second frequency band when the control component

determines that the received signal comprises signals in the second frequency band, in order to configure a first antenna and second antenna to receive signals in a first or second frequency range and convey the received signals in the first or second frequency range to a first or second receiver, when the device is operating in the first or second mode as taught by Leinonen (see p. 2 [0036-0037] and p. 3 [0038]).

Regarding claim 21, Leinonen teaches a method (see abstract), comprising: providing a mobile communication device that includes a first antenna (*antenna 12*) tuned to receive a signal in at least a first frequency band (*e.g., GSM-850*) (see p. 4 [0057], p. 5 [0062] and Figs. 1C & 5) and a second antenna (*antenna 13*) tuned to receive signals in a second frequency band (*i.e., WCDMA-1900*) and at least the first frequency band (*i.e., GSM-850*) (see p. 4 [0057], p. 5 [0062] and Figs. 1c & 5); coupling the second antenna to a first switch (see p. 5 [0062] and Fig. 5); further coupling the first switch to one of a first tuning circuit that facilitates tuning the second antenna for reception of a signal in second frequency band and a second tuning circuit that facilitate tuning the second antenna for reception of a signal in at least the first frequency band received by the first antenna (see p. 4 [0057], p. 5 [0062] and Fig. 5); coupling the second antenna to a second switch (see p. 5 [0062] and Fig. 5); and further coupling the second switch to one of first receiving component that facilitates one of processing, transduction, and modulation of a signal in the second frequency band and a second receiving component that facilitates one of processing, transduction, and modulation of a signal in at least the first frequency band received by the first antenna (see p. 4 [0057], p. 5 [0062] and Fig. 5).

Leinonen fails to explicitly teach providing a control component configured to determine whether a received signal comprises signal in the second frequency band and tuning the second component for reception of a signal in a second frequency band when the control component determines that the received signal comprises signals in the second frequency band.

However, Leinonen teaches a processor 94 (*i.e., reads on a control component*) for providing a control signal to a switch 34, and the switch 34 under the received control signal conveys signals received by the antenna 13 in the second frequency band (*i.e., WCDMA-1900*) to the WCDMA-1900 receiver 54 (see p. 5 [0062] and Fig. 5).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Leinonen to include a method of providing a control component configured to determine whether a received signal comprises signal in the second frequency band and tuning the second component for reception of a signal in a second frequency band when the control component determines that the received signal comprises signals in the second frequency band, in order to configure a first antenna and second antenna to receive signals in a first or second frequency range and convey the received signals in the first or second frequency range to a first or second receiver, when the device is operating in the first or second mode as taught by Leinonen (see p. 2 [0036-0037] and p. 3 [0038]).

Regarding claims 2, 13 and 20, Leinonen teaches all the limitations of claims 1 and 17. Leinonen further teaches a mobile telephone, further comprising tuning the second antenna to receive signals in the second frequency band when the control

component determines that the received signal comprises signals in the second frequency band (see p. 4 [0057] and p. 5 [0062]).

Regarding claim 5, Leinonen teaches all the limitations of claim 1. Leinonen further teaches an apparatus, wherein the second module comprises: a first tuning component configured to tune the second antenna for reception of signals in the second frequency band; and a second tuning component configured to tune the second antenna for reception of signals in at least the first frequency band received by the first antenna (see p. 4 [0057], p. 5 [0062] and Fig. 5).

Regarding claim 8, Leinonen teaches all the limitations of claim 1. Leinonen further teaches the apparatus, further comprising: a first receiving component that facilitates at least one of transduction, modulation, and processing of a signal in at least the first frequency band received by the first antenna; and a second receiving component that facilitates at least one of transduction, modulation, and processing of a signal in the second frequency band (see p. 4 [0057], p. 5 [0062] and Fig. 5).

Regarding claims 6 and 9, Leinonen teaches all the limitations of claims 5 and 8. Leinonen further teaches the apparatus, further comprising a radio frequency switch configured to couple the second antenna to one of the first tuning component and the second tuning component (see p. 4 [0057], p. 5 [0062] and Fig. 5).

Regarding claim 16, Leinonen teaches all the limitations of claim 1. Leinonen further teaches the apparatus, further comprising: a first switch that couples one of a first tuning component and a second tuning component of the second module to the second antenna, wherein the first tuning component facilitates reception of a signal in

the second frequency band on the second antenna and the second tuning component facilitates reception of a signal in at least the first frequency band received by the first antenna on the second antenna (see p. 4 [0057], p. 5 [0062] and Fig. 5); a second switch that couples one of a first receiving component and a second receiving component to the second antenna, wherein the first receiving component facilitates one of transduction, modulation, and processing of the signal in the second frequency band and the second receiving component facilitates one of transduction, modulation, and processing of a signal in at least the first frequency band received by the first antenna (see p. 4 [0057], p. 5 [0062] and Fig. 5); wherein the control component is configured to relay commands to at least one of the first switch and second switch to facilitate a desirable coupling, the coupling based at least in part upon whether the received signal comprises signals in the second frequency band (see p. 4 [0057], p. 5 [0062] and Fig. 5).

Regarding claims 14, 18 and 19, Leinonen teaches all the limitations of claims 1 and 17. Leinonen further teaches a radiating element that is coupled to a transmission line, and wherein a length of the transmission line is selectable between at least two lengths and altering an electrical length of a resonating element associated with the second antenna to tune the second antenna (see p. 4 [0057] and p. 5 [0066]).

Regarding claim 25, Leinonen teaches all the limitations of claim 1. Leinonen further teaches the apparatus, wherein the first frequency band is a personal communication service band, a cellular band, a Korean personal communication band, or a China personal communication service band (see p. 4 [0057] and p. 5 [0062]).

5. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leinonen et al., U.S. Publication Number 2003/0176176 A1 (hereinafter Leinonen)** as applied to claims 5 and 9 above, and further in view of **Braun et al., U.S. Patent Number 6,980,782 (hereinafter Braun).**

Regarding claims 7 and 10, Leinonen teaches all the limitations of claims 5 and 9. Leinonen fails to explicitly teach the radio frequency switch being one of a PIN-diode, a micro electro-mechanical system switch, and a field effect transistor switch.

In an analogous field of endeavor, Braun teaches an antenna device for transmitting and receiving radio frequency waves installable in a communication device includes an antenna structure switchable between antenna configuration states, wherein an antenna switching unit may be PIN diode switches, GaAs field effect transistors (FET), or microelectromechanical system (MEMS) switches (see abstract, col. 11, lines 15-24 and Fig. 7a).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Leinonen with Braun, wherein the RF switch is one of a PIN-diode, a MEMS switch, and a FET switch, in order to electrically connect and disconnect antenna elements in parallel or in series with each other, or completely connect or disconnect one or more antenna elements to ground as taught by Braun (see col. 11, lines 15-24).

6. Claims 3, 4, 15 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leinonen et al., U.S. Publication Number 2003/0176176 A1**

(hereinafter Leinonen) as applied to claims 1 and 22 above, and further in view of **Eggleston, U. S. Patent Number 6,414, 640 (hereinafter Eggleston)**.

Regarding claims 3, 4, 15 and 23, Leinonen teaches all the limitations of claims 1 and 22. Leinonen fails to explicitly teach wherein the second antenna is a top-mounted inverted F-antenna and the inverted F-antenna exhibits circular polarization characteristics.

However, the use of a top-mounted inverted F-antenna exhibiting circular polarization characteristics is very well known in the art as taught for example by Eggleston. Eggleston teaches a top-mounted inverted F-antenna (TOPIFA) used in a mobile station, and wherein the top-mounted inverted F-antenna assembly exhibits circular polarization characteristics (see col. 3, lines 35-47, col. 3, lines 64-67, col. 5, lines 39-52 and Fig. 3). According to Eggleston, the antenna assembly is used in a mobile station operable pursuant to conventional cellular operation as well as to receive GPS signals used for positioning purposes and because of the circular polarization characteristics of the resultant antenna transducer, a relatively high antenna gain characteristic is provided by the antenna transducer (see col. 6, lines 29-41).
It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to implement the antenna assembly of Eggleston in the communication system of Leinonen, in order to realize a relatively high antenna gain characteristic.

7. Claims 12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leinonen et al., U.S. Publication Number 2003/0176176 A1 (hereinafter**

Leinonen) as applied to claim 1 above, and further in view of **Balchunas et al., U.S. Publication Number 2006/0097171 A1 (hereinafter Balchunas).**

Regarding claims 12 and 26, Leinonen teaches all the limitations of claim 1. Leinonen fails to explicitly teach a system, further comprising an emergency component that automatically configures the second antenna to receive a signal in the second frequency band upon transmitting data to an emergency number and wherein the second frequency band is a global positioning band.

In an analogous field of endeavor, Balchunas teaches a GPS enabled wireless personal communication device, further comprising an emergency component that automatically configures the second antenna to receive a GPS signal upon transmitting data to an emergency number (see p. 5 [0045 & 0047] and Fig. 3; shows an automatic dialer 335 [i.e. reads on emergency component] that automatically configures antenna 375 to receive a GPS signal).

It would therefore have been obvious to one of ordinary skill in the art at the of the invention to modify Leinonen with the teachings of Balchunas, in order to enable various communications without user interface, such as autodialing using an automatic dialer module to dial the number of an emergency response center to report pertinent information regarding radiation levels and provide location specific information as taught by Balchunas (see p. 5 [0044-0048]).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY S. ADDY whose telephone number is (571)272-7795. The examiner can normally be reached on Mon-Thur 8:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc M. Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anthony S Addy/
Examiner, Art Unit 2617

/Duc Nguyen/
Supervisory Patent Examiner, Art Unit 2617